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A review on the significance of East Kolkata Wetland: A Ramsar Site with integrated resource recovery activities

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ABSTRACT

East Kolkata Wetland (EKW) is a significant Biodiversity rich Ramsar Site in West Bengal, India. It has a significant Ecological and socio-economic importance and plays a vital role in biodiversity conservation, eco-restoration, environmental protection and pollution control. It harbours world's largest wastewater fed aquaculture system. It acts as a great resource recovery system by utilizing the city sewage and therefore reduces huge expenditure towards running expenses of a waste treatment plants. The Wetland generates employments and provides valuable edibles like vegetables, fish and acts as lifeline of approximately 1, 50,000 peoples. It has diverse group of flora and fauna and harbours different types of microorganisms. It is a great natural resource and needs to be conserved for the welfare of society. The aim of the present review is to highlight the ecological, socio-economic importance and resource recovery activities of the East Kolkata Wetland and need of its conservation.

Key words : East Kolkata Wetland, Significance, Ramsar Site, Resource recovery.

Introduction

Wetlands are the intermediate zone between terrestrial and aquatic ecosystems and cover almost six percent of total earth surface (Williams, 1990). Wetlands are some of the most productive ecosystems in the world (Mitsch and Gosselink, 1993). Dr. Dhrubajyoti Ghosh first introduced the name East Calcutta Wetland. The East Calcutta Wetland is also known as the East Kolkata Wetland that contains both natural and man-made wetlands. East Kolkata Wetland was considered as 'Wetland of International Importance' under 'Ramsar Convention' on 19th August, 2002 and designated as Ramsar Site (Ramsar Site No. 1208) in November, 2002 (Dasgupta and Panigrahi, 2014). East Kolkata Wetland is the only Ramsar Site in the West Bengal. The East Kolkata Wetland is situated at 22°25' to 22°40'N and 88°20' to 88°35'E (Figure 1) (Dutta and Chakraborty, 2017).

East Kolkata Wetland contains multiple water bodies which are distributed across the districts of South and North 24 Parganas and covers more than 12,500 hectares containing 37 mouzas (Mandal and Bandyopadhyay, 2018). The East Kolkata Wetland bears almost 364 sewage-fed fisheries, agricultural land, solid waste farms and some built up areas (Ghosh *et al.*, 2018). The four major types of land use patterns of East Kolkata Wetland are: a) Wetlands area of 5852.14 hector, b) Agricultural area of 4718.56 hector, c) Productive Farming area (garbage dumping, Dhapa) of 602.78 hector, d) Urban and

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On the biology of some aquatic monocotyledons occurring in East Kolkata Wetlands

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The East Kolkata Wetlands (EKWs) encompass a large number of water bodies located in the districts of North and South 24 Parganas, West Bengal. They cover an area of 12,500 hectares, on the eastern part of the metropolis Kolkata, and borders on the Salt Lake Township up to the new township at Rajarhat. EKWs were declared as 'Wetland of International Importance' according to the 'Ramsar convention' on 19th August, 2002 and as a 'Ramsar Site' in November, 2002. East Kolkata Wetlands have a huge floral and faunal diversity. The present study documents some free floating and rooted emergent monocotyledonous plants of the East Kolkata Wetlands. A total of four free floating and four rooted emergent aquatic monocot species were recorded, which belonged to seven genera and five families.

Key words: East Kolkata Wetlands, free floating, rooted emergent, aquatic monocotyledons.

INTRODUCTION

Wetlands, intermediate zone between terrestrial and aquatic ecosystems, cover almost six percent of total earth surface (Williams, 1990). Wetlands are some of the most productive ecosystems in the world (Mitsch and Gosselink, 1993). These provide very important natural resources and deemed as a national wealth, hence must be sustained for both ecological welfare and economic prosperity of a country. Wetlands play crucial roles in environmental protection, eco-restoration, pollution control, as well as, in biodiversity conservation and maintenance of ground water at an optimum level. Aquatic plants, the key components of wetlands, provide livelihoods for the millions of people, as many aquatic plants have medicinal and food value as well. Aquatic plants are unique as they can modify the physico-chemical conditions and provide a detritus input to food chains (Carpenter and Lodge, 1986). Aquatic macrophytes provide oxygen to the water ecosystems and also play important roles in the cycling of minerals and other organic constituents. They favour all biomass production of water bodies and can act as indicators for monitoring the degree of damage in an ecosystem (Kumar and Choudhary, 2009). Aquatic macrophytes are also used as bio-indicators of pollution because they can respond to the changes in water quality (Tripathi and Shukla, 1991). The aquatic plants are frequently used to reduce different kinds of pollutants from polluted water (Tripathi, 1992).

Dr. Dhrubajyoti Ghosh first coined the name East Calcutta Wetlands for the vast tract of natural and man-made wetlands present on the eastern fringes of Kolkata. East Kolkata Wetlands are rich in biodiversity

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